

NOVEMBER/DECEMBER 2023

CAEL34/FAEL32 — BASIC PHYSICS – I

Time : Three hours

Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.



1. What is moment of inertia?
2. Write the moment of inertia of a circular ring.
3. Define rigidity modulus.
4. What are the three elastic constants?
5. Define turbulent flow.
6. Define viscosity,
7. Give the statement of second law of thermodynamics.
8. What is a irreversible process?
9. What is reverberation?
10. Define absorption coefficient.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Derive an expression for moment of inertia of a circular disc.

Or

- (b) Discuss the variation of g with depth.

12. (a) Derive the elastic constants.

Or

- (b) Explain the measurement of Young's modulus by non-uniform bending.

13. (a) Explain the viscosity of highly viscous liquid.

Or

- (b) Explain the variation of surface tension with temperature.

14. (a) Describe the first law of thermodynamics.

Or

- (b) Explain the reversible process.

15. (a) Explain the measurement of AC frequency by Melde's string.

Or

- (b) Explain the characters of good acoustics of buildings.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss the determination of G by Boy's method.
17. Explain the determination of rigidity modulus by static torsion.
18. Describe the excess of pressure inside a soap bubble.
19. Describe the thermal conductivity of a bad conductor by Lee's disc method.
20. Derive Sabine's formula.
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